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Family Health Culture, Health Locus of Control and Health Behaviours in Older Children

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Abstract

Many factors impact on the health of adolescents and in a climate of high levels of obesity, and poor health behaviours it is important to understand these in order to target interventions. The aim of this cross-sectional survey study was to explore the relationship between family health culture, health locus of control and adolescent health behaviours. The 673 participants assessed were all aged from 16 to 18 years of age, with 268 males (39.8%) and 405 females (60.2%). The results show that regular breakfast consumption, family health culture, family encouragement for personal growth, and internal health locus of control are all significant predictors of adolescent health behaviours. Some implications for health promotion in adolescents are also discussed.

Introduction

The majority of health care is focused on preventable illnesses making it essential that prevention is a core aspect of future health service [1,2]. A major causal factor in a range of health problems is obesity which is described as an epidemic in older children and adolescents [3,4]. Obesity essentially develops from an imbalance between energy intake and expenditure and it has been linked to a myriad of causal influences including socio-economic status, family and peer influences, sedentary behaviour and media advertising [5]. Older childhood and adolescence is an important life-stage and is a period of unique influences on health and health behaviour, influences that permeate adult life [6-8]. Health habits established early in life are resistant to change making this a key period for preventive intervention [9].

There are a number of behaviours impacting on adolescent health, as at any life stage. The Key Data on Adolescence produced by [3] conclude that there is a trend of decreasing levels of physical activity and healthy food choices as children progress through adolescence [10]. Analyzed data from the World Health Organization Health Behaviour in School-aged Children (HBSC) study focusing on 4404 participants in England. Amongst other variables, eating habits and playing sport with family were analysed in relation to physical activity levels. They concluded that engagement in physical activity was associated with a healthy lifestyle (including fruit and breakfast consumption) and stressed the importance of the positive effects of family involvement with sporting activities-the authors conclude with the acknowledgement that family still has an influential role to play in adolescent health behaviour.

Many of the negative influences on adolescent health behaviours have been linked to family practices and suggest that family health culture could be a useful focus for both research and intervention. This is becoming even more important in a context where the average age of children leaving home has risen to around 25-27 years of age [11]. The family is the immediate environment providing the context for the development of health behaviour [12], and arguably the most influential in terms of promoting healthy behaviour or establishing poor health habits [13]. They argue that family units share similar health behaviour characteristics, such as physical activity levels, eating habits and body weight and exert influence through social modeling processes [5].

Eating meals together as a family has been shown to promote healthy behaviours in adolescents [14], and one aspect of eating behaviour that has been shown to increase nutrient intake is breakfast consumption [15]. Found that children who

ate ready-to-eat cereal were more likely to consume required nutrients than those who ate other breakfast items; with those who did not regularly eat breakfast as the most nutrient deficient of all [16]. Agree that eating a (healthy) breakfast is an important health-promoting behaviour, and is related to lower BMI and increased intake of nutrients. It has also been identified that as they progress through adolescence, children increasingly skip breakfast and increasingly opt to eat at a different time than their family [6,16,17]. Argue that it is essential to develop research on adolescent perception of their parent's attitudes and behaviours and how these are associated with the adolescent health behaviours [18]. Agree and found that adolescents identified obesity as one of the most important health concerns.

Based on [19] concept of locus of control [20], developed and applied a model specific to health. Health locus of control concerns the beliefs of individuals about the agents acting on their health. It is concerned with whether an individual believes that they are responsible for their own health status (internal locus of control), whether their state of health is due to chance (chance locus of control) or whether their health is controlled by what has been termed 'powerful others', for instance doctors [8,21]. State that health locus of control recognizes the importance of health being a responsibility of the individual. They found that adolescents in their study scoring higher on internal health locus of control tended to have healthier dietary behaviours which are what predicts [22].

It is believed that behaviours and habits formed in childhood and adolescence remain through to adulthood [5]. The family unit has influence over this through social modeling processes. The current study is therefore focusing on the family environment and its relation to healthy behaviour in 16-18 year old adolescents. In this instance, family culture encompasses the family environment and attitudes towards healthy behaviours (as perceived by the teenagers) and the healthy behaviours of the teenagers under study. In relation to attempting to explain the impact of family on children and adolescents it is also suggested that this might be mediated by health locus of control. The aim of this study was to explore the relationship between family health culture and the health attitudes and behaviour of a sample of older children aged 16-18 years old.

The objectives were:

A. To test if the health attitudes and behaviours of family predict the health behaviour of adolescents.

B. To test if the family environment predicts the health behaviour of adolescents.

C. To test if the relationship between family health attitudes and behaviour and adolescence health behaviour is mediated by health locus of control.

Method

Design

This research employed a cross-sectional survey design using a self-report questionnaire as the method of data collection.

Participants

The participants were 673 older children, aged 16 to 18 years old with the mean age being 16.9 years of age. There were 268 males (39.8%) and 405 females (60.2%). Of the 673 participants, 482 (71.6%) were from families where the parents were still together. The majority of participants (42.8%) were in the 'normal weight' category, with 29.6% being classified as overweight and 24.8% being classified as obese.

Measures

Demographic details were collected on age, sex, parental highest education level and occupations of the mother and father. Details were also asked regarding how many siblings participants have and where within the family the participants' position is. Height and weight were also requested to enable a calculation of body mass index (BMI). Again, this has been identified as an important variable when research is looking at influences on health.

The Reported Health Behaviour Checklist [23]. The instructions in the first part of the questionnaire stated that the participant had to complete it from the point of view of their family. The same measure was used again at the end of the study questionnaire, with the instructions that the participant had to complete it from their own perspective. In both instances, the measure was scored in the same way. The Reported Health Behaviour Checklist contains 21 items which are scored on a 5-point Likert scale. With 1 corresponding to 'strongly agree' through to '5 'strongly disagree'. The first 15 items are concerned with health action behaviours, which are lifestyle behaviours demonstrated in relation to health. The next 6 items are designed to assess cognitive-affective health behaviours which are more concerned with mental health aspects that are mental representations of stressors and the control of emotions.

For the purpose of this study a measure of family encouragement to carry out healthy behaviours was devised. This comprised of a 9 item measure, with respondents being asked to rate on a 5-point Likert scale how often they felt their family had provided encouragement on the different items, ranging from 'never' (1) to always (5). All 9 items described a healthy behaviour, so the range of possible scores were 9 (unhealthy/low levels of encouragement) to 45 (high levels of encouragement). Cronbach's alpha was .91.

3) Also developed for the purpose of this study was a 2-item measure looking at the frequency of two eating behaviours – namely, how often the participant shared family meals and how often they consumed breakfast. These are treated as separate variables in the analysis and again are scored by respondents on a 5-point Likert scale from 'never' (1) to 'everyday' (5).

The Family Environment Scale [24]. A 62-item version was used for this study. The scale attempts to measure factors within the family environment and these were further grouped into 3 higher order factors of relationships (this incorporates the cohesion and expressiveness scores summed minus conflict scores), personal growth (which comprised the achievement orientation, religious-moral orientation, independence, intellectual-cultural orientation and active-recreational orientation items) and systems maintenance (organization and control items). The participants are asked to respond in a true / false format, with true scored as 1 and false scored as 0.

Therefore the higher the score obtained the more experience the respondents had of that item within their family.

Health Locus of Control was measured by the Multidimensional Health Locus of Control [20]. This is an 18 item measure, scored on a 6-point Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (6). This assessment tool measures the level of control an individual feels they have over their health. To this end, the measure is comprised of 3 independent subscales (one internal and two external) measuring different aspects of health locus of control - internal (this is when an individual believes that their health status is due to their behaviour), External - Powerful others (when an individual believes doctors and other important people to them cause their health status) and External - Chance (this construct is attempting to measure the level at which people believe that their health status is down to chance). The higher the score, the higher the belief in the different constructs.

Procedure

Ethical approval was granted from the University Research Ethics committee. The power calculation suggested that the sample size required was a minimum of 567. Therefore questionnaires were distributed by hand to 1200 adolescents attending open days at three universities in the United Kingdom. 400 questionnaires were given to delegates on the psychology stands at each of the three universities, who were instructed to give the questionnaires out to passing students. All students were targeted and participants were asked to return completed questionnaires into a box at the stand.

This method of sampling, whilst being opportunistic, ensured that the required number of questionnaires was distributed. Participants were requested to complete the accompanying consent form and questionnaire and return it to the designated box prior to leaving. In order to prompt completion, announcements were made over the Universities loud speaker system. 673 questionnaires were returned in a useable state, so therefore there was a response rate of 56.1%. According to Bowling (2009) this is a sub-optimal response rate, however, there were 673 questionnaires returned which was a higher number than the power calculation suggested was required.

Ethical Issues

The questionnaires were completed anonymously and returned with a completed consent form. All participants were handed the questionnaires and there was a auditory prompt to complete and return them, but at no time were any participants coerced into completing them.

Results

All data analysis was completed using SPSS-version 22. Descriptive statistics were obtained (Table 1). Initial analysis used Pearson's' correlations to test for relationships between variables and this was followed by hierarchical multiple regression to test for predictors (Table 1).

	Mean	Standard deviation
Family cognitive affective health behaviour	3.14	1.26
Family health action	3.04	1.26
Family relations	16.01	3.71
Family personal growth	24.09	6.55
Family systems maintenance	8.93	6.55
Health action	2.99	1.27
Cognitive affective health behaviours	3.02	1.22
Family size	2.28	1.58
Regular breakfast eating	3.21	1.27
Regular shared family meals	3.11	1.37
Family health culture	3.09	1.42
Internal health locus of control	17.14	8.81
Powerful others health locus of control	20.26	10.65
Chance health locus of control	16.54	8.28
Position in family	2.84	0.93

Table 1: The descriptive statistics for the variables within the study.

Do the health attitudes and behaviours of family predict the health behaviour of children?

The potential predictor (independent) variables included here were family cognitive affective health behaviours, family health action, regular breakfast eating, regular shared family meals and family health culture. Their relationship was tested with the dependent variables the adolescent's cognitive affective health behaviour and health action variables. Table 2 shows the output following Pearson's correlation (Table 2).

	Health action	Cognitive Affective Health Behaviour
Family Cognitive Affective Health Behaviour	.152**	.104**
Family Health Action	.244**	.092*
Regular Breakfast Eating	.395**	.145**
Regular Shared family meals	.242**	.085*
Family health culture	.388**	.157**

Table 2: Pearson correlation to test the relationship between family health attitudes and behaviours and health behaviours of the children.

*Significant at the 0.05level (2-tailed)** significant at the 0.01 level (2-tailed)

There is a medium strength positive correlation between eating breakfast and young people's health behaviours and between family health culture and health behaviours. The relationship between regular breakfast and the health behaviours of the young people suggests that the more regularly young people eat breakfast / ate breakfast as a child then the healthier behaviours they present with now. The positive relationship between family health culture and adolescent health behaviour also suggests that the more encouragement a family give to be healthy, the more likelihood there is for the child to demonstrate health behaviours. This does suggest that the family can have a positive influence on the health behaviours of children. The hierarchical multiple regression analysis sees the Table4 provides further information (Table 3).

	Health action	Cognitive Affective Health Behaviour
Parental status	-.125**	-0.031
Socioeconomic status	0.032	-0.004
Family relations	.258**	.150**
Family personal growth	.339**	.378**
Family systems maintenance	.120**	.133**
Family size	0.008	-0.039

Table 3: Pearson correlation to test the relationship between family environment and the health behaviours of children.

*Significant at the 0.05level (2-tailed)** significant at the 0.01 level (2-tailed)

The next stage in analysis used hierarchical multiple regression analysis (HMRA) as shown in Table 4. That applies to this objective is model 2, which as a whole explains 28.2% of variance in health action, with family behaviour explaining a further 14% of the variance in health action. This includes the 7 variables of family environment plus the 5 further variables of family health attitudes and behaviours. Of the twelve variables at this stage, regular breakfast consumption makes the largest unique contribution (beta=.243) with family encouragement to be healthy next (beta=.214). Model 2 is significant (F 12,651) = 21.33, p<.001). As for cognitive affective variable dependent variable, this model explains 16.4% of the variance, with family personal growth being the only significant variable, making a unique contribution (beta=.389).

Does the family environment predict the health behaviour of children?

The potential predictor variables included here were parental status, family relations, family personal growth, family systems maintenance, family size and position in family. Again the relationship was tested with the dependent variables of young person's health action and cognitive affective health behaviour. There is a medium strength positive correlation between family personal growths and both health action and cognitive affective health behaviour in children, which suggests families encouraging personal growth, have a beneficial health effects on adolescent health behaviours. Hierarchical multiple regression analysis was conducted to test for predictors. The dependent variables (one in each of two separate analyses) were health action (Table 4) of the young person and cognitive affective health (Table 5) of the young person.

Model	Variable	b	R2	R2 Change	F Value	P <	Dependent Variable
1			0.139	0.139	15.18		Health action
	Parental status	-0.088				0.05	
	Family relations	0.13				0.05	
	Family personal growth	0.25				0.001	
2			0.282	0.143			
	Parental status	-0.084				0.05	
	Family relations	0.087				0.05	
	Family personal growth	0.19				0.001	
	Regular breakfast eating	0.243				0.001	
	Family health culture	0.214				0.001	
3			0.494	0.212	90.58		
	Family relations	0.069				0.05	
	Family personal growth	0.129				0.001	
	Regular breakfast eating	0.122				0.001	
	Family health culture	0.14				0.05	
	Internal health locus of control	0.445				0.001	
	Powerful others health locus of control	-0.172				0.001	
	Chance health locus of control	0.113				0.05	

Table 4: The significant predictors of young peoples' health action from hierarchical multiple regression analysis.

Model	Variable	B	R2	R2 Change	F Value	P <	Dependent Variable
1			0.156	0.156	17.29		Cognitive affective health behaviours
	Parental status	0.054				ns	
	Family personal growth	0.406				0.001	
	Family systems maintenance	0.081				0.05	
2			0.164	0.008	1.306		
	Parental status	0.055				ns	
	Family systems maintenance	0.064				ns	
	Family personal growth	0.389				0.001	
3			0.167	0.003	0.697		
	Parental status	0.155				ns	
	Family systems maintenance	0.024				ns	
	Family personal growth	0.383				0.001	
	Internal health locus of control	0.009				ns	
	Powerful others health locus of control	0.003				ns	

	Chance health locus of control	0.001				ns	

Table 5: The significant predictors of young peoples' cognitive affective from hierarchical multiple regression analysis.

ns = non-significant

To test the predictors of children's health action, family status and environment measures were entered on step 1 and accounted for 13.9% of the variance in health action. Family health culture and frequency of breakfast were entered on step 2 and added another 14.3% to the explanatory power. The three health locus of control variables were entered into the model at step 3 and these added 21.2% of variance explained bringing the total variance explained to 49.4%. For health action, the variables having most impact were family personal growth (b=.25), regular breakfast (b=.24), family health culture (b=.21), and internal health locus of control (b=.45).To test in health locus of control mediates the relationship the HMRA was rerun with these 4 variables and with family health culture x internal health locus of control as the interaction variable. The addition of this interaction did not add significant variance and did not reduce the separate effects of family health culture and internal health locus of control, therefore there was no mediation observed. However the fact that internal health locus of control adds significantly to the variance explained suggests that it has a moderating effect.

To test the predictors of children's cognitive affective health behaviour, family status and environment measures were entered on step 1 and accounted for 15.6% of the variance in cognitive affective health behaviour. Family health culture and frequency of breakfast were entered on step 2 but did not add to the explanatory power. The three health locus of control variables were entered into the model at step 3 and these did not add anything to the percentage of variance explained. In fact the only variable contributing significantly at step 3 was family personal growth (b=.383).

Discussion

The main findings of this study are that his variables that are strongly related to adolescent's healthy behaviours are family personal growth, regular breakfasting, family health culture, and internal health locus of control. In essence children in families where they were encouraged to grow, where breakfast eating was regular, where the family engaged in healthy behaviours, and where the child had an internal perception of control over their health, were more likely to engage in healthy behaviours themselves. Family personal growth includes encouragement to be independent, to pursue activities, and to strive to achieve seems to encourage the perception of internal control and a more healthy approach to life. Family health culture reflects a general tendency for the whole family to engage in positive health behaviours thereby providing a social model for the child.

Internal health locus of control is a significant aspect of this syndrome of healthy behaviours and supports the research that links it with better health [8]. In addition this research supports those who claim that the family provides a major source of socialization in relation to health [25]. However this study is innovative in combining family health culture with health locus of control and opens the way for further research. Clearly cross sectional data cannot establish causality but we can infer potential for causality from the strong relationships hereby demonstrated.

Conclusion

The implications of this study can be considered in terms of the obesity crisis discussed in the introduction. It points to the family as a rich source for intervention. Whole family interventions tend not to be common in health promotion [26]. Discuss an integrated social cognitive theory within an ecological model to consider children's eating habits and food choices. Social Cognitive Theory [26] includes social modeling and levels of reinforcement and self-efficacy. The ecological model considers this within the immediate and wider environments affecting behaviour over time. This may be an important perspective from which to consider adolescent health behaviours, especially as their social groups and relative influences change over time. Families are an important part of the social ecology and may provide the starting point for a more ecologically valid approach to health promotion.

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